

HMONG HEALTHCARE PRACTICES IN ORANGE COUNTY

Results From the Hmong Health Survey

Summer 2002



KEV TIV THAIV ZOO TSHAJ KEV KHO



Health Care Agency
Public Health Services
Health Promotion Division
Multi-Ethnic Health Education Services



COUNTY OF ORANGE HEALTH CARE AGENCY

PUBLIC HEALTH SERVICES

JULIETTE A. POULSON, RN, MN
DIRECTOR

MARK B. HORTON, MD, MSPH
DEPUTY AGENCY DIRECTOR/HEALTH OFFICER

MAILING ADDRESS:
405 W 5th STREET, 7th Floor
SANTA ANA, CA 92701

TELEPHONE: (714) 834-3155
FAX: (714) 834-5506

E-MAIL: mhorton@hca.co.orange.ca.us

April 7, 2003

We are pleased to share this first formal report on the health beliefs and practices of Hmong-Americans in Orange County with you. The *Hmong Healthcare Practices in Orange County: Results from the Hmong Health Survey* report attempts to fill a gap in knowledge within the county regarding the health of Hmong-Americans, a group which has unique socio-cultural features that may complicate the delivery of healthcare services.

Results from the survey illustrate the condition of Hmong-Americans in Orange County:

- It suggests high proportions of Hmong-Americans are without health insurance, are not participating in health-promoting behaviors, and lack knowledge about access to and navigation of the County's healthcare system.
- It affirms the need to address linguistic isolation as a meaningful barrier to healthcare access.
- It reinforces the need for health providers to prepare themselves, their facilities, and staff to provide culturally competent medical care and health-promoting services to their Hmong-American clientele.

Professionals are encouraged to reach out to Hmong-Americans in a manner that respects and encourages their native lifestyles, while facilitating access to and adaptation of those mainstream behaviors and medicines that promote health.

We hope you will use this report to identify the health needs of the Hmong-Americans in your community—and to challenge your organization to respond to these unique needs. If you have additional questions regarding this report or Hmong-American health in general, please contact Bob Olson, PhD, MPH, at (714) 834-3892 or bolson@hca.co.orange.ca.us.

Sincerely,

Mark B. Horton, MD, MSPH
Deputy Agency Director/Health Officer

HMONG HEALTHCARE PRACTICES IN ORANGE COUNTY

Results From the Hmong Health Survey

Summer 2002

Chongge Vang
Social Work Assistant

Travers Ichinose, MA, MS
Epidemiologist

Sara Murrieta, PhD, MPH
Program Supervisor

EXECUTIVE SUMMARY

Hmong-Americans are relatively new members of the American family, having fled political persecution resulting from their assistance with Vietnam-era U.S. military campaigns. Many suffer from the difficulties associated with low socio-economic status, cultural dissonance, low levels of education, linguistic isolation, and difficulties in accessing health care.

In order to describe health care among Hmong-Americans in Orange County, we conducted a survey that was administered by a Hmong-speaking researcher within the Hmong-American community. The Hmong Health Survey yielded several important findings.

- Results suggested many Hmong-Americans in Orange County might not be engaging in health promotion behaviors. Thirty-six percent of respondents reported not participating in any preventive health maintenance behaviors.
- A large proportion of Hmong-Americans in Orange County may lack access to basic medical services since over 30% of Hmong surveyed were uninsured.
- Substantial linguistic barriers may exist which inhibit optimal medical care. Only one in ten respondents had doctors who spoke their language. Among those linguistically incompatible with their physician, over four in ten never had their doctor provide translation services, and almost one in four never brought a translator to a doctor visit. Subsequently, it is possible significant linguistic barriers to proper medical treatments exist among Hmong in the county.
- Over half of Hmong-Americans surveyed used Hmong and/or Chinese herbal remedies. Physicians should be aware that such treatments might be performed prior to, during the course of, or in lieu of conventional Western medical techniques.
- Many of those surveyed were unaware of the availability of low cost medical services provided by the County of Orange. Two of three respondents were unaware of such services, suggesting additional efforts may be necessary in educating this community about their health care options.
- Results suggest the dissemination of county health care information to Hmong-Americans would be best communicated in Hmong or Lao languages within home and community center settings.

INTRODUCTION

It has been a quarter of a century since the first significant wave of Hmong refugees resettled in the United States. Some have been able to adjust to the new environment, while others were unprepared for the cultural differences they experienced. For these persons, it has been difficult, often frustrating, to learn the language, living skills, traditions, regulations, and job skills necessary to function effectively in the U.S.

Hmong in the United States suffer from a high degree of poverty, with a 1990 median household income of \$14,327 (True and Guillermo, 1996). According to 1990 U.S. Census statistics, over 60% of Hmong-Americans live in poverty; less than 6% have completed college; and only 29% participate in the labor force (President's Advisory Commission on Asian Americans and Pacific Islanders, 2001). Cultural differences and misunderstandings also complicate interactions between Hmong-Americans and American institutions (Barrett et al., 1998). Consequently, this sub-population has encountered significant barriers to the access and utilization of health care services in the United States.

Prior to this report, there had been no formal attempts to characterize the cultural and linguistic issues affecting Hmong-American access to health care in Orange County. This report describes aspects of Hmong-American use of Western medicine, adherence to traditional medical practices, linguistic barriers, medical problems and knowledge/attitudes regarding county medical services in Orange County. The Hmong Health Survey was also intended to inform future efforts of a similar nature. This report contains a brief background of Hmong history, details methods used in data acquisition, presents and interprets survey findings, and discusses recommendations based upon key results.

History of the Hmong

The Hmong are a people with a long and sometimes turbulent past. However, due to the relatively recent development of a written Hmong language and to multiple geographic migrations, much of Hmong history beyond 5,000 years ago remains speculative. The Hmong originated in Northern China, where they competed with the Chinese for rich soil along the banks of the Yellow River (Quincy, 1995). The Chinese made war on the Hmong and drove them South to what today is known as the Hupeh and Hunan provinces, where the Hmong then established an independent kingdom. In the tenth century, the Hmong were conquered, and thousands taken as slaves. Those who escaped the Hupeh/Hunan region fled to the mountainous areas of Kweichow, Szechwan, and Yunnan, where, in the 18th and 19th centuries, they were again attacked by the Chinese (Quincy, 1995). Thousands of Hmong then fled China to Northern Vietnam, Laos, Thailand and Burma (Mottin, 1980). Many made their home in the mountain ranges of Laos, Burma, Thailand and Vietnam.

In 1961, General Vang Pao, a Hmong leader in Laos, was appointed by the United States Central Intelligence Agency to raise an army of Hmong and train them in intelligence and combat tactics as Special Guerrilla Units (SGU) against North Vietnamese and Pathet-Lao communists. During their fifteen years of armed service, skilled Hmong units protected American personnel, rescued American pilots, and disrupted the flow of communist military personnel, supplies, trucks, and tanks traveling along the Ho Chi Minh Trail. Such involvement resulted in thousands of Hmong military casualties as well as the death of many Hmong civilians. After the United States withdrew from Southeast Asia in 1975, nearly 300,000 men, women and children primarily of Hmong descent were killed by Lao communists in their homes or while attempting escape to Thailand (United Nations, 2000). Aggression against Hmong by the Pathet-Lao regime continues and is now supported by Vietnamese troops, in what has been described as "ethnic cleansing" (United Nations, 2000). Hmong have since resettled throughout the world as political refugees. According to Census 2000 figures, approximately 169,428 Hmong now live within the United States, though other estimates have placed the figure closer to 300,000 (Hmong National Development, Inc., 2000). Currently, the U.S. Census estimates that between 962 and 1,126 Hmong-Americans live in Orange County, CA (U.S. Census, 2000), though this figure is also likely an undercount.

Hmong Health in the United States

Peer review literature on the health of Hmong in the United States is relatively undeveloped. There have been few studies on the prevalence or incidence of specific diseases, health outcomes, and behavioral risk factors among this population, which may be due in part to the relatively small number of Hmong-Americans, unique cultural and linguistic features that impede scientific study, and their recent arrival to the United States.

Lifestyle factors, and their associated chronic diseases, may be of primary importance to understanding Hmong health in the United States. Among the most important of these changes are those of a dietary nature. Traditionally, the daily meal pattern of Hmong consisted of three meals plus snacks, heavy use of rice, use of various vegetables, and modest quantities of fish and meats. However, younger Hmong-Americans are increasingly consuming fast foods high in cholesterol and fat.

Dietary acculturation among the Hmong in

America may be linked to an increased occurrence of obesity, particularly among Hmong youth (Himes et al, 1992; Story and Harris, 1989). Such acculturation may increase risk for a variety of chronic diseases, including cardiovascular disease and diabetes. Hypertension, a known risk factor for cardiovascular disease, was almost 3 times as high among Hmong boys, and one and a half times as high in girls, compared to their respective African-American and White counterparts (Munger et al, 1991).

A study of cancer incidence rates among the Hmong of Central California was conducted using Cancer Registry of Central California data from 1987 to 1994. The study suggested Hmong-Americans might suffer elevated rates of cervical, nasopharyngeal, stomach, liver, and pancreatic cancers, as well as leukemias and non-Hodgkin's Lymphomas, compared to all other race/ethnicities combined (Mills and Yang, 1997). However, Hmong in Central California had lower rates of breast, prostate, and colorectal cancers (Mills and Yang, 1997). The study also found higher rates of advanced stage disease upon diagnosis among Hmong-Americans for a number of cancers. The authors suggested such phenomena may be due to sociocultural impediments to healthcare access and utilization, including an aversion to Western healthcare and low participation in cancer screening (Mills and Yang, 1997). Consistent with this notion is research suggesting only 30% of Hmong women 20 and older living in Fresno, Long Beach, Orange County, and San Diego have ever had a mammogram (Tanasiri et al, 2001). By comparison, among California women 18 and older, approximately 67% of Whites, 67% of African-Americans, and 47% of Latinas report ever having had a mammogram (CDC, 2000). Some studies have reported that Hmong-American women may be deterred in having gynecological and breast examinations by aversions to being touched by healthcare workers (Spring et al, 1995).



Hmong Americans pick up tips at a health fair booth.

Maternal and child health issues have also been studied among Hmong-Americans. Though Hmong children may be of lower birthweight than White, non-Hispanic children, Hmong children born in California from 1985 to 1988 were not statistically different from White, non-Hispanic children in terms of proportion with low-birthweight (Helsel et al, 1992). Hmong-American women in California may have higher parity (number of lifetime full-term births) and may be more likely to have children at younger (< 18 years of age) and older (> 40 years of age) ages than Whites (Helsel et al, 1992). Hmong-American women may also be much less likely to have Caesarean sections than White, non-Hispanic women regardless of age and parity (Helsel et al, 1992). It has been suggested that relatively few Hmong-American women may be engaging in breast-feeding (Jambunathan and Stewart, 1995; Tuttle and Dewey, 1994).

Studies have suggested high rates of Hepatitis B (Gjerdingen and Lor, 1997; Catanzaro and Moser, 1982) and tuberculosis (Catanzaro and Moser, 1982) infection among Hmong in America. Emotional disorders related to familial and cultural separation, feelings of survivor's guilt, and post-traumatic stress disorder may serve as a hidden source of chronic morbidity among the Hmong (Mouanoutoua and Brown, 1995).

Given manifestations of chronic disease and increases in harmful behavioral risk factors among Hmong Americans, health care access and utilization issues are of paramount importance within this population. Moreover, considering the poverty, lack of education, and linguistic isolation found among Hmong-Americans (President's Advisory Commission on Asian Americans and Pacific Islanders, 2001; True and Guillermo, 1996), the potential for problems related to health care access and utilization are substantial.

RESULTS AND DISCUSSION

This section summarizes the primary findings of the Hmong Health Survey. Results are divided into six sections: Demographic Characteristics, Health Status and Behaviors, Traditional Hmong Medicine, Use of Western Medicine, Ethnic and Linguistic Features of Physicians, and Awareness and Attitudes Regarding County Health Services. Methods employed in this report are reported in Appendix A.

Demographic Characteristics

Table 1 shows demographic characteristics of survey respondents. Among those surveyed, there were slightly more males (58%) than females (42%). The mean age of respondents was 49 years. The majority of respondents were between forty and fifty-nine years of age (49%), while 23% were sixty years of age or older, and 28% were thirty-nine or younger. Among those who responded, 81% said they were married, 18% were widowed, and no respondents reported being single or divorced. Geographically, the Hmong community in Orange County is focused in the center of the region. Overall, 60% of those surveyed lived in Santa Ana or Fountain Valley. More specifically, 41% of those surveyed lived in the city of Santa Ana within the 92703 and 92704 zip codes.

An additional 25% of those surveyed lived within Garden Grove or Westminster. Lower proportions of respondents lived within the areas of Anaheim (8%), Huntington Beach (6%), and Placentia (2%).



An extended Hmong family when they first arrived in Orange County.

TABLE 1. Select demographic characteristics of Hmong Health Survey respondent.*

Demographic Characteristic	No.	Percentage
Gender		
Male	60	58%
Female	44	42%
Age		
19-39 Years	29	28%
40-59 Years	52	49%
60-86 Years	24	23%
Marital Status		
Married	84	81%
Divorced	0	0%
Widowed	19	18%
Single	0	0%
Geographic Region		
Santa Ana/Fountain Valley	62	60%
Garden Grove/Westminster	26	25%
Anaheim area	8	8%
Huntington Beach	6	6%
Placentia	2	2%

*Percentages may not add up to 100% due to rounding and multiple responses. Certain items may contain missing data.

Of respondents, almost all (99%) were born in Laos, though a single person reported being born in a refugee camp in Thailand (Table 1). No subjects were born in the United States. As seen in Figure 1, the vast majority (76%) of Hmong respondents reported arriving in the United States between 1975 and 1984, with only 24% arriving after 1984. A particularly large proportion (41%) of respondents reported arriving during 1979 or 1980. Approximately a third (34%) of those surveyed reported having no formal education in the United States, while 76% reported four or fewer years of education in the U.S. Among those surveyed, 30% said they never went to school in their native country. Only 12% of respondents attended 12 or more years of school in their country of origin.

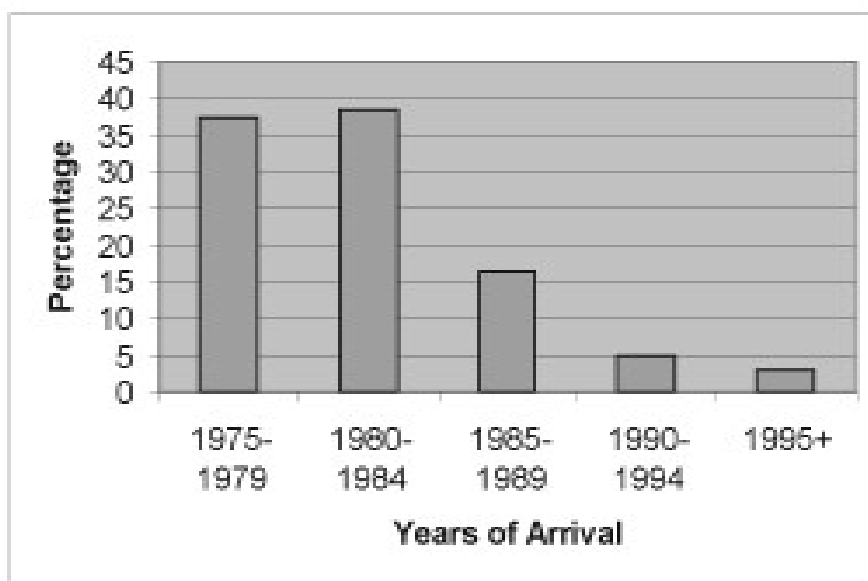


FIGURE 1. Percentage of Hmong Health Survey respondents reporting categories of year of arrival in the United States (n = 104).

Health Status and Behaviors

Among those who responded to a question regarding self-rated health, 14% described their health as excellent, 33% reported being in good health, 9% considered themselves in fair health, while 9% reported their health was poor (Table 2). Interestingly, 21% of respondents said they did not know their health status, and 14% refused to answer. Women were 30% more likely to report poor/fair health as men, though this difference was not statistically significant. Those reporting perceived barriers to healthcare were 70% more likely than those without barriers to report poor/fair health. Those having a regular doctor were 80% more likely to report poor/fair health than those without a regular doctor. Respondents using shamans were 20% more likely than those not using shamans to report poor/fair health. Those reporting use of herbal remedies were 200% more likely than those who did not use such remedies to report poor/fair health. Those who reported engaging in any sort of health promotion behavior (any behavior done for the purpose of maintaining health and/or



A Hmong American family exercising together.

TABLE 2. Self-rated health status and health maintenance behaviors among Hmong Health Survey respondents.*

Questionnaire Item	No.	Percentage
How would you describe your health?		
Excellent	15	14%
Good	35	33%
Fair	9	9%
Poor	9	9%
Don't know	22	21%
Refuse	15	14%
What do you do to stay healthy?		
Exercise	29	28%
Diet	27	26%
Sleep	1	1%
Traditional medicine	3	3%
Western medicine	3	3%
Nothing	38	36%
Don't know	14	13%

*Percentages may not add up to 100% due to rounding and multiple responses.
Certain items may contain missing data.

preventing disease) were 70% less likely to report poor/fair health. Those having insurance were 40% less likely to report poor/fair health than those without insurance. Only those associations between self-reported poor/fair health with herbal remedy use and health promotion behavior approached statistical significance. Risk estimates and confidence intervals can be found in Appendix B.

Respondents were also asked which preventive health behaviors they engaged in (Table 2). Thirty-six percent of respondents claimed to do no preventive health maintenance. Almost a third of subjects (28%) stated they exercised to maintain health and approximately 26% identified diet as a means by which they stay healthy. Small percentages of respondents reported utilizing traditional (3%) and Western medicine (3%) for health maintenance. About 13% of respondents reported they did not know what they did to maintain health. Women were 50% more likely to report not participating in health promotion behaviors than men. Those Hmong-American respondents reporting barriers to healthcare were 70% more likely than those without perceived barriers to report doing nothing to maintain health. Those who reported having insurance were 40% less likely to report non-participation in health promotion behaviors than were those without insurance. None of these differences approached statistical significance. Risk estimates and confidence intervals can be found in Appendix B.

Traditional Hmong Medicine

Many Hmong-Americans believe illness can be caused by both natural and supernatural phenomena (Henry, 1999).



A Hmong American shaman about to begin a ritual ceremony.

Hmong spiritual healers, called "shamans," perform ceremonies to invoke assistance from the spirit world in treating illness. Shaman might be requested by the ill and are sometimes used in conjunction with Western medicine. Many Hmong in the United States use herbs for medicinal treatments. Treatments may include ingestion or application of herbal preparations, abdominal massage, herbal body massage, cupping, coin rubbing, and treatment with boiled eggs. Some ethno-pharmacologic research suggests a high proportion (92 percent) of plants used medicinally by the Hmong have biochemical properties that make them potentially effective by Western biomedical criteria (Spring, 1989), though it should be noted that their safety and effectiveness have not been formally evaluated. Consequently, Western medicine is sometimes considered only after traditional means of healing have proven ineffective, which may delay use of those medical treatments with the highest probability of success.

In the Hmong Health Survey, respondents were asked if they consulted Hmong shaman (Figure 2). Approximately 41% (43 subjects) of respondents refused to answer this item. Of those 62 (59%) subjects who responded, 44% reported consulting a shaman.

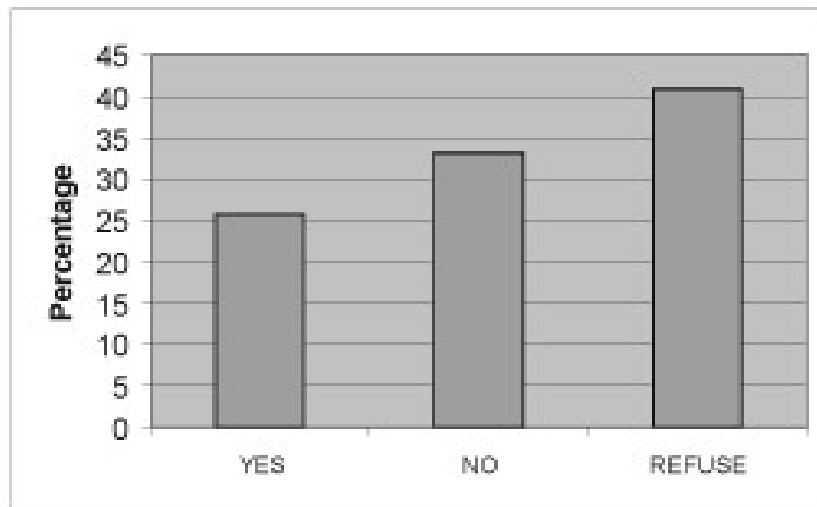


FIGURE 2. Percentage of Hmong Health Survey respondents reporting shaman consultation (n = 105).

Of those 27 reporting consultation with Hmong shaman, 20 (74%) reported they see a shaman when ill. Fifteen respondents (55%) said that they might see a Shaman after having a bad dream or when they feel inhabited by a bad spirit.

Use of medicinal herbs appears prevalent among those Hmong surveyed (Figure 3). Over half (58%) of respondents reported use of Hmong and/or Chinese herbal remedies. Approximately 8 percent of subjects used non-herbal traditional Hmong techniques, such as coin rubbing, cupping, and punching.

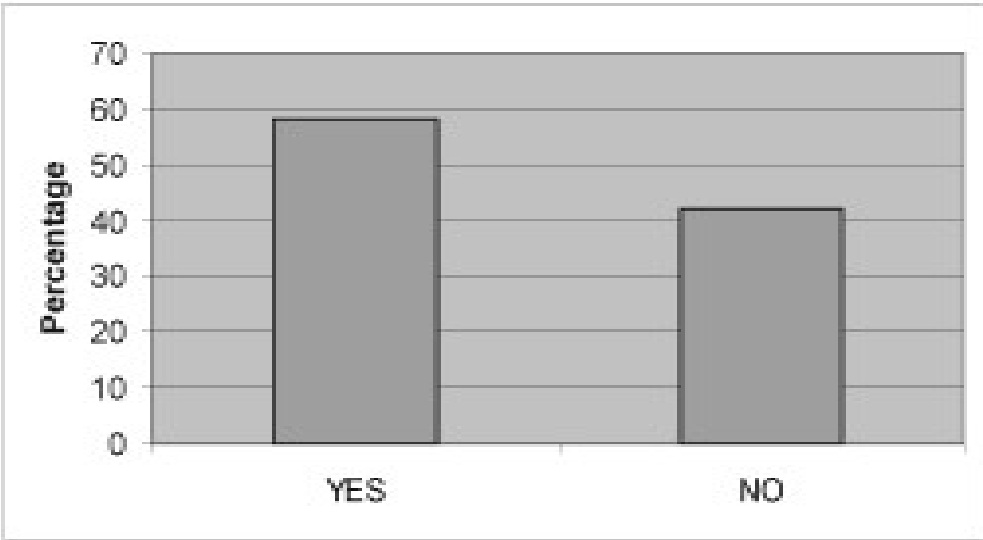


FIGURE 3. Percentage of Hmong Health Survey respondents reporting use of medicinal herbs (n = 105).

Subjects reported using traditional medicinal remedies for a variety of symptoms, including fevers, body pain, headache, and colds. Approximately one out of ten respondents reported using traditional medicinal methods for all types of illnesses.

Use of Western Medicine

Table 3 shows subject response to items regarding Western medical care. Of those Hmong-Americans surveyed, 33% were uninsured while an additional 28% were insured through Medicare, Medi-Cal, or Healthy Families. Only 35% reported having private medical insurance. Comparatively speaking, approximately 7% of Whites in Orange County are without insurance coverage (California Health Interview Survey, 2001). Almost all (90%) of those surveyed reported seeking medical care from private physicians. However, only 45% said they have a regular doctor. Three persons said they did not know if they had a regular physician. Twenty-one percent visited their physician on a monthly basis, while one in four respondents reported going to the doctor once a year, and 29% of those surveyed said they visited their physician only when they were ill.

Ethnic and Linguistic Features of Physicians

Due in part to the relatively recent arrival of Hmong to the United States and translation complexities, it is estimated that approximately 61% of Hmong-American households are linguistically isolated (President’s Advisory Commission on Asian Americans and Pacific Islanders, 2001). The U.S. Census Bureau defines linguistic isolation as “a household in which no person age 14 or over speaks only English and no person age 14 or over who speaks a language other than English speaks English ‘very well’ (U.S. Census Bureau, 2000).” Language barriers can make healthcare communication difficult and, at times, impossible. Adequate interpretation of the Hmong or Lao languages is often rare and inadequate interpretation can itself lead to misunderstandings and subsequent mistreatment. Some Hmong-American parents may be forced to depend on teenagers or older children (Westermeyer and Her, 1996) for interpretation. Often there is an absence of direct Hmong/English translation for medical terminology, necessitating indirect approximations of actual meaning (Johnson, 2002).

TABLE 3. Western medical care reported by Hmong Health Survey respondents.*

Questionnaire Item	No.	Percentage
What types of medical insurance do you have?		
None	34	33%
Private	36	35%
Medicare	8	8%
Medi-Cal OP	20	19%
Healthy Families	1	1%
Don't know	1	1%
Refuse	3	3%
Where do you go for medical care?		
Private doctor	94	90%
County clinic	1	1%
Hospital	4	4%
Folk-doctors	4	4%
None	2	2%
Do you have a regular doctor?		
Yes	47	45%
No	49	47%
Don't know	3	3%
Refuse	5	5%
How often do you see your doctor?		
Once a month	13	21%
Once a year	15	25%
Only when I have problems	18	29%
Never	1	2%
Don't know	6	10%
Refuse	8	13%

*Percentages may not add up to 100% due to rounding and multiple responses. Certain items may contain missing data.

Cultural and linguistic features of physicians used by Hmong-American respondents are illustrated in Table 4. The majority (67%) of respondents see doctors of Asian ancestry, with the most common physician ancestry being Thai (39%). However, among those who see a doctor, 90% said the physician does not speak their language. Approximately 7% of those surveyed said their doctor provides translation services all of the time, 47% reported these services were provided some of the time, and 45% reported translation was never provided by their physician. Among respondents, 26% reported bringing a translator every time and another 48% bring a translator some of the time, while 24% never bring a translator.

Respondents were also asked if they encountered barriers in seeing a doctor. Only 12 (11%) subjects claimed to have encountered such barriers. Twenty-six (25%) respondents did not answer this item.

Awareness and Attitudes Regarding County Health Services

Table 5 summarizes awareness and attitudes of Hmong-American survey respondents towards Orange County medical services. Among those that responded, only 21% said they were aware of free or low cost medical services for low-income families. Such awareness did not vary significantly by insurance status. The overwhelming majority of respondents (83%) said they are interested in health services provided by the County of Orange Health Care Agency. However, only ten percent said that they wanted more information on specific health topics, while 78% responded "Don't Know" when asked if they wanted such information.

TABLE 4. Ethnic and linguistic characteristics of doctors used by Hmong-American survey respondents.*

Questionnaire Item	No.	Percentage
What ethnicity is your medical doctor?		
Thai	24	39%
American	20	32%
Vietnamese	15	24%
Hmong	1	2%
Chinese	1	2%
Other	1	2%
Does your doctor speak your language?		
Yes	6	10%
No	54	90%
If your doctor doesn't speak your language, do you bring a translator with you?		
Every time	15	26%
Sometimes	28	48%
Never	14	24%
If your doctor doesn't speak your language, does your doctor provide a translator?		
Every time	4	7%
Sometimes	27	47%
Never	26	45%

*Percentages may not add up to 100% due to rounding and multiple responses. Certain items may contain missing data.

Subjects were asked in which languages they would like to see health information written (Table 5). The great majority (85%) said they would prefer to receive health information in the Hmong language while fifty-nine percent would like information in Lao. Two percent mentioned Khmu, which is a highlander

ethnic language in Laos, while seven percent would like to see health information written in English. When asked in which settings they would like to receive healthcare information, 91% mentioned their home, 69% noted community centers, and 23% said a hospital or private clinic setting (Table 5). Literature has also suggested integration of Hmong cultural themes of family and equilibrium, or the natural balance of opposites, as well as the use of Hmong folklore may aid in conveying health messages (Frye, 1995).



Sharing health information at the Hmong New Year Festival.

TABLE 5. Awareness and attitudes regarding Orange County medical services among Hmong-American survey respondents.*

Questionnaire Item	No.	Percentage
Did you know that in Orange County some free and low cost medical treatment is available for low-income families?		
Yes	22	21%
No	70	67%
Refuse	13	12%
Are you interested in what health services are available through the County of Orange Health Care Agency?		
Yes	86	83%
No	18	17%
Would you like more information on specific health topics?		
Yes	11	10%
No	7	7%
Don't know	82	78%
Refuse	5	5%
In what language would you like to receive health information?		
Hmong	88	85%
Lao	61	59%
English	7	7%
Khmu	2	2%
Where do you wish to receive health information?		
Home	94	91%
Community center	71	69%
Hospital	24	23%

*Percentages may not add up to 100% due to rounding and multiple responses. Certain items may contain missing data.

CONCLUSIONS

While almost half of those surveyed reported engaging in health promotion activities involving diet and/or exercise, over a third did not report engaging in any health promotion behavior, suggesting substantial potential for health education impact. Associations between health maintenance behaviors and self-reported health status, which approached statistical significance, may underscore the importance of health promotion in perception of overall wellness. These findings are consistent with literature suggesting a high potential for increased obesity and associated chronic diseases among Hmong-Americans.

Results from education items suggest a low degree of formal schooling, both in terms of education obtained within the United States and within countries of origin. Approximately a third of respondents had no education from U.S. institutions, and a third reported having no education within their homeland. Many respondents told the interviewer their U.S. education consisted largely of English as a Second Language (ESL) classes. This lack of education may be impeding employment in occupations that offer health insurance benefits.

Over a quarter of respondents reported consulting a Hmong shaman though a substantial proportion of those surveyed refused to answer this item. One possible explanation for this item's low response rate is that many Hmong are hesitant to admit they take part in such practices. Over half of respondents reported using Hmong or Chinese herbal medicines, and those who reported using herbal remedies were more likely to report poor/fair health, suggesting that use of herbal remedies may be a front-line treatment

among Hmong-Americans in Orange County and/or that herbal remedies are used but may not positively affect health status. These data collectively suggest many Hmong-Americans still subscribe to traditional means of healing and that participation in such practices must be considered when evaluating the health of this population.

Approximately a third of respondents reported having no medical insurance, suggesting economic barriers to medical care might be substantial. Open-ended interview responses suggested some Hmong may be restricted from applying for Medi-Cal or Healthy Families programs by occupational and domestic responsibilities. However, only one in ten respondents reported perceiving barriers to seeing a physician though one in four refused to answer this item. Among barriers mentioned in open-ended interviews were linguistic problems, economic limitations and logistic issues regarding transportation. Modesty was also a perceived impediment. For example, in Laos, patients are not asked to undress in a doctor's office and, therefore, Hmong in the United States, particularly women, may be reluctant to expose their body or respond to the intimate questions often asked at a doctor's office.

Almost all respondents received medical care from private physicians, yet only slightly less than half of those surveyed reported having a regular doctor. Results suggest those Hmong-Americans surveyed may prefer doctors of Asian ethnicity despite the persistence of linguistic barriers. There are some similarities between the Thai and Laotian languages that facilitate communication between a Hmong patient and a Thai doctor, though such communication remains problematic. Only a small proportion of respondents have doctors who speak their language, and translation services are inconsistently provided, with half of respondents reporting doctors sometimes or never provide translators. Given these language barriers, many clients are forced to bring their own interpreter, though results show this may also be inconsistent. Four in ten respondents reported they sometimes or never bring their own interpreter. Open-ended interviews suggest the interpreter brought by the patient may be a child or adolescent with little comprehension of medicine or its terminology. Half of those whose physician did not provide interpreting services did not bring a translator themselves, suggesting the potential for serious communication impediments to proper treatment.

Results from the Hmong Health Survey also suggest there may be a low level of knowledge among the Hmong community in Orange County regarding county health services though a large majority of respondents were interested in receiving more information regarding such services. The majority of respondents would prefer to receive materials in the Hmong language though results suggest Lao materials would also be well received by the Hmong community. Almost all of those surveyed said they would like to receive health information at their home, while many also mentioned a preference for community centers. Use of culturally relevant Hmong themes may also aid health communication.

Additional research using more rigorous sampling methodologies within the Hmong-American population may be fruitful. Perhaps one day the Orange County Hmong-American community can cross the river of cultural and linguistic barriers to the mainstream western medical techniques that may serve as vital lines in the prevention and treatment of adverse health conditions.

ACKNOWLEDGMENTS

The authors acknowledge Eileen Lao and Sharon Thayer for technical assistance and Raul Sobero, Chad Mai, Curtis Condon, Howard Sutter, and Bob Olson for valuable manuscript review and input.

REFERENCES

- Barrett B, Shaddick K, Shilling R, et al. Hmong/medicine interactions: improving cross-cultural health care. *Family Medicine* 1998;30:179-184.
- California Health Interview Survey, UCLA Center for Health Policy Research, University of California, Los Angeles, 2001.
- Centers for Disease Control and Prevention (CDC). Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2000.
- Catanzaro A and Moser RJ. Health status of refugees from Vietnam, Laos, and Cambodia. *Journal of the American Medical Association* 1982;247:1303-1308.
- Frye BA. Use of cultural themes in promoting health among Southeast Asian refugees. *American Journal of Health Promotion* 1995;9:269-280.
- Gjerdingen DK and Lor V. Hepatitis B status of Hmong patients. *Journal of the American Board of Family Practitioners* 1997;10:322-328.
- Helsel D, Petitti DB, and Kunstadter P. Pregnancy among the Hmong: birthweight, age, and parity. *American Journal of Public Health* 1992;82:1361-1364.
- Henry RR. Measles, Hmong, and metaphor: culture change and illness management under conditions of immigration. *Medical Anthropology Quarterly* 1999;13:32-50.
- Himes JH, Story M, Czaplinski K, et al. Indications of early obesity in low-income Hmong children. *American Journal of Disease and Children* 1992;146:67-69.
- Hmong National Development, Inc. Washington, D.C.
- Jambunathan J and Stewart S. Hmong women in Wisconsin: what are their concerns in pregnancy and childbirth? *Birth* 1995;22:204-210.
- Johnson SK. Hmong health beliefs and experiences in the western health care system. *Journal of Transcultural Nursing* 2002;13:126-132.
- Mills PK and Yang R. Cancer incidence in the Hmong of Central California, United States, 1987-94. *Cancer Causes and Control* 1997;5:705-712.
- Mottin, Jean. History of the Hmong. Bangkok: Odeon Store, 1980.
- Mouanoutoua VL and Brown LG. Hopkins Symptom Checklist-25, Hmong version: a screening instrument for psychological stress. *Journal of Personality Assessment* 1995;64:376-383.
- Munger RG, Gomez-Marin O, Prineas RJ, et al. Elevated blood pressure among Southeast Asian refugee children in Minnesota. *American Journal of Epidemiology* 1991;12:1257-1265

President's Advisory Commission on Asian Americans and Pacific Islanders. Asian Americans and Pacific Islanders. A People Looking Forward. Action for Access and Partnerships in the 21st Century. Interim Report to the President and the Nation. Washington, DC: White House Initiative on Asian Americans and Pacific Islanders; 2001.

Quincy, Keith. Hmong: History of a People. Cheney, Wash.: Eastern Washington University Press, 1995.

Spring MA, Ross PJ, Etkin NL, et al. Sociocultural factors in the use of prenatal care by Hmong women, Minneapolis. *American Journal of Public Health* 1995;85:1015-1017.

Spring MA. Ethnopharmacologic analysis of medicinal plants used by Laotian Hmong refugees in Minnesota. *Journal of Ethnopharmacology* 1989;26:65-91.

Story M and Harris LJ. Food habits and dietary change of Southeast Asian refugee families living in the United States. *Journal of the American Dietetic Association* 1989;89:800-803.

Tanjasiri SP, Kagawa-Singer M, Foo MA, et al. Breast cancer screening among Hmong women in California. *Journal of Cancer Education* 2001;16:50-54.

True RH and Guillermo T. Asian/Pacific Islander American women. In: Bayne-Smith M, ed. Race, Gender and Health. Thousand Oaks, California: Sage Publications; 1996:94-120.

Tuttle CR and Dewey KG. Determinants of infant feeding choices among Southeast Asian immigrants in northern California. *Journal of the American Dietetic Association* 1994;94:282-286.

United Nations Commission on Human Rights. Human rights of indigenous peoples; Report of the working group on indigenous populations on its eighteenth session. E/CN.4/Sub.2/2000/24. Geneva, August 2000.

United States Census Bureau. Census 2000 Summary File 1 (SF 1) 100-Percent Data; Orange County, CA: Published August 14, 2001.

United States Census Bureau. Census 2000 Summary File 1 (SF 1) 100-Percent Data; United States: Published August 14, 2001.

Westermeyer J and Her C. Predictors of English fluency among Hmong refugees in Minnesota: a longitudinal study. *Cultural Diversity and Mental Health* 1996;2:125-132.

APPENDICES

APPENDIX A: METHODOLOGICAL ISSUES

Subjects for the Hmong Health Survey were accrued by one of two methods. First, a list of Orange County Hmong-Americans belonging to the United Lao Movement, a Hmong community organization, was acquired. Key informants were selected from this list of 119 members, contacted via telephone and asked to participate. Second, with the assistance of other community leaders, a native Hmong-speaking researcher gathered a convenience-sample of Hmong-Americans, recruiting participants through Hmong-American community centers, churches, and temples in Orange County. The use of a single interviewer eliminated the potential for inter-interviewer biases. In all, one hundred and five Hmong refugees and immigrants agreed to participate. A single native Hmong-speaking researcher conducted interviews between March and September of 1999. Usually the respondent was the head of household. The survey/interview contained items on self-rated health, health promotion activities, use of traditional medicine, use of Western medicine, linguistic barriers, medical insurance, and education. Analysis of Hmong Health Survey data was performed using SPSS 10.1 (SPSS Inc., Chicago, IL). Chi-squares, odds ratios, and confidence intervals were calculated using CROSSTABS procedures in SPSS.

There are several potential limitations of the current study. Currently, there is no single source from which a sampling frame for the Hmong-American population in Orange County could be derived. Subsequently, the external validity of this study may be questionable. However, given that 105 Hmong-Americans participated and that there are currently an estimated 986 to 1,126 Hmong in Orange County (U.S. Census, 2000), approximately nine to eleven percent of all Hmong-Americans in the county were surveyed. Selection bias may have existed because it is not known how members of the United Lao Movement and participants recruited from community centers, churches, and temples differ from Hmong-Americans throughout the Orange County. Large degrees of non-response on items regarding Shaman use may indicate reporting bias, resulting in underestimations of adherence to traditional medical practices. Also, data on income were not collected making it difficult to assess the intervening effect of socioeconomic status on healthcare phenomenon among Hmong-Americans. Finally, the study was conducted in a cross sectional manner, making the temporality of associations derived from Hmong Health Survey data unclear. Measures of point estimates and measures of association may also be unstable due to the small sample size.

APPENDIX B: TABLE OF RISK ESTIMATES**Appendix B. Odds ratios of select health variables with predictors.***

Predictors by Dependent Variable	Odds Ratio	95% Confidence Interval
Predictors of poor/fair health:		
Female gender	1.3	(0.42-3.77)
Perceiving health care barriers	1.7	(0.35-8.22)
Having a regular doctor	1.8	(0.55-6.17)
Use of shamans	1.2	(0.37-3.91)
Use of herbal remedies	3.0	(0.95-9.85)
Participation in health promotion behavior	0.3	(0.11-1.07)
Having health insurance	0.6	(0.19-2.05)
Predictors of non-participation in health promotion Behaviors:		
Female gender	1.5	(0.65-3.60)
Perceiving health care barriers	1.7	(0.47-6.29)
Having health insurance	0.6	(0.25-1.50)

*Odds ratios and 95% confidence intervals are unadjusted and calculated using the CROSSTAB procedure in SPSS.

